

WHAT IS CLAIMED IS:

1. A heat exchanger comprising:  
an air flow structure that has a top surface, a bottom surface, a  
5 width, a length, a first edge that runs along the width, a second edge  
that runs along the width, a plurality of first grooves in the top surface,  
and a plurality of second grooves in the bottom surface, the first and  
second grooves extending along the length between the first and second  
edges, a groove having a substantially uniform width from the first edge  
10 to the second edge;  
a plurality of first walls connected to the air flow structure, each  
first wall extending from a section on a first side of a first groove to a  
section on a second opposing side of the first groove; and  
a plurality of second walls connected to the air flow structure,  
15 each second wall extending from a section on a first side of a second  
groove to a section on a second opposing side of the second groove.
2. The heat exchanger of claim 1 wherein a first wall and a  
first groove have substantially equal widths.  
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3. The heat exchanger of claim 1 and further comprising a  
first plate formed adjacent to the top surface, the first plate contacting  
the plurality of first walls, the first plate having a first opening and a  
second opening spaced apart from the first opening, the first opening  
25 exposing portions of the first grooves.
4. The heat exchanger of claim 3 wherein the first plate  
contacts the top surface.

5. The heat exchanger of claim 2 wherein a second wall and a second groove have substantially equal widths.

6. The heat exchanger of claim 3 and further comprising a second plate formed adjacent to the bottom surface, the second plate contacting the plurality of second walls, the second plate having a third opening and a fourth opening spaced apart from the third opening, the third opening exposing portions of the second grooves.

7. The heat exchanger of claim 6 wherein the second plate contacts the bottom surface.

8. The heat exchanger of claim 6 wherein the second plate includes a base section and sidewalls that extend perpendicularly away from the base section.

9. The heat exchanger of claim 8 and further comprising a first air flow generator connected to the second plate adjacent to the second opening, the first air flow generator causing air to follow a path through the first opening along the first grooves and through the second opening.

10. The heat exchanger of claim 8 and further comprising a first air flow generator connected to the first plate adjacent to the second opening, the first air flow generator causing air to follow a path through the first opening along the first grooves and through the second opening.

11. The heat exchanger of claim 9 and further comprising a second air flow generator connected to the first plate adjacent to the fourth opening, the second air flow generator causing air to follow a path through the third opening along the second grooves and through  
5 the fourth opening.

12. The heat exchanger of claim 9 and further comprising a second air flow generator connected to the second plate adjacent to the fourth opening, the second air flow generator causing air to follow a  
10 path through the third opening along the second grooves and through the fourth opening.

13. The heat exchanger of claim 1 wherein a first groove and a second groove share a section of the structure.  
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14. The heat exchanger of claim 1 wherein the first walls include an elastomer.

15. The heat exchanger of claim 14 wherein the elastomer  
20 includes silicon rubber.

16. The heat exchanger of claim 1 wherein the first walls include plastic.

25 17. A method of forming a heat exchanger, the method comprising the steps of:

forming an air flow structure that has a top surface, a bottom surface, a width, a length, a first edge that runs along the width, a second edge that runs along the width, a plurality of first grooves in the

top surface, and a plurality of second grooves in the bottom surface, the first and second grooves extending along the length between the first and second edges, each groove having a substantially uniform width from the first edge to the second edge; and

5           forming a plurality of first walls connected to the air flow structure, each first wall extending from a section on a first side of a first groove to a section on a second opposing side of the first groove, a first wall and groove having substantially equal widths.

10           18.    The method of claim 17 wherein the forming a plurality of first walls includes the steps of:

          placing the first edge in a mold;

          introducing an elastomer into the mold;

          curing the elastomer such that a wall is formed to close each of

15   the first and second grooves along first edge; and

          removing the walls that close off the second grooves at the first edge.

          19.    The method of claim 17 wherein the forming a plurality of first walls includes the steps of:

          forming a plurality of wall sections;

          applying an adhesive to the wall sections;

          placing the wall sections in the first grooves at the first edge.

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